## SPEC® CFP2006 Result

### Huawei

#### Huawei XH628 V3 (Intel Xeon E5-2695 v3)

<table>
<thead>
<tr>
<th>SPECfp²₀₀₆</th>
<th>92.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECfp_base²₀₀₆</td>
<td>86.5</td>
</tr>
</tbody>
</table>

**CPU2006 license:** 3175  
**Test sponsor:** Huawei  
**Tested by:** Huawei  
**Test date:** Feb-2015  
**Hardware Availability:** Sep-2014  
**Software Availability:** Sep-2014

### Hardware

- **CPU Name:** Intel Xeon E5-2695 v3  
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.30 GHz  
- **CPU MHz:** 2300  
- **FPU:** Integrated  
- **CPU(s) enabled:** 28 cores, 2 chips, 14 cores/chip  
- **CPU(s) orderable:** 1.2 chip  
- **Primary Cache:** 32 KB I + 32 KB D on chip per core  
- **Secondary Cache:** 256 KB I+D on chip per core

### Software

- **Operating System:** Red Hat Enterprise Linux Server release 7.0 (Maipo)  
  3.10.0-123.el7.x86_64  
- **Compiler:** C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux;  
  Fortran: Version 15.0.0.090 of Intel Fortran Studio XE for Linux  
- **Auto Parallel:** Yes  
- **File System:** ext4

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### Huawei XH628 V3 (Intel Xeon E5-2695 v3)

**SPECfp2006 =** 92.0  
**SPECfp_base2006 =** 86.5

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<th>Seconds</th>
<th>Ratio</th>
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<td>355</td>
<td>54.8</td>
</tr>
</tbody>
</table>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

#### Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

#### Platform Notes

**BIOS configuration:**
- Set Power Efficiency Mode to Custom
- Set Snoop Mode to ES
- Set Hyper-Threading to Disabled
- Set Patrol Scrub to Disable
- Baseboard Management Controller used to adjust the fan speed to 100%

**Sysinfo program /spec15/config/sysinfo.rev6914**

$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1

Running on localhost.localdomain Sat Feb 14 20:08:49 2015

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Huawei XH628 V3 (Intel Xeon E5-2695 v3)

SPECfp2006 = 92.0
SPECfp_base2006 = 86.5

CPU2006 license: 3175
Test sponsor: Huawei
Tested by: Huawei
Test date: Feb-2015
Hardware Availability: Sep-2014
Software Availability: Sep-2014

Platform Notes (Continued)

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:
http://www.spec.org/cpu2006/Docs/config.html#sysinfo

From /proc/cpuinfo

model name : Intel(R) Xeon(R) CPU E5-2695 v3 @ 2.30GHz
2 "physical id"s (chips)
28 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)
cpu cores : 14
siblings : 14
physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
cache size : 35840 KB

From /proc/meminfo

MemTotal:       263720096 kB
HugePages_Total:       0
Hugepagesize:       2048 kB

From /etc/*release*/etc/*version*

os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.0 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.0"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.0 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.0:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.0:ga:server

uname -a:
Linux localhost.localdomain 3.10.0-123.el7.x86_64 #1 SMP Mon May 5 11:16:57
EDT 2014 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Feb 14 20:08

SPEC is set to: /spec15

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda1 ext4 433G 63G 349G 16% /

Additional information from dmidecode:

Warning: Use caution when you interpret this section. The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

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Huawei XH628 V3 (Intel Xeon E5-2695 v3)

**SPECfp2006** = 92.0

**SPECfp_base2006** = 86.5

### Platform Notes (Continued)

BIOS Insyde Corp. 1.17 09/03/2014
Memory:
8x Micron 36ASF2G72PZ-2G1A2 16 GB 1 rank 2133 MHz
8x Micron 36ASF2G72PZ-2G1A2 16 GB 2 rank 2133 MHz

(End of data from sysinfo program)

### General Notes

Environment variables set by runspec before the start of the run:
- KMP_AFFINITY = "granularity=fine,compact,1,0"
- LD_LIBRARY_PATH = "/spec15/libs/32:/spec15/libs/64:/spec15/sh"
- OMP_NUM_THREADS = "28"

Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB memory using RedHat EL 7.0
Transparent Huge Pages enabled with:
- echo always > /sys/kernel/mm/transparent_hugepage/enabled
- runspec command invoked through numactl i.e.:
- numactl --interleave=all runspec <etc>

The Huawei XH622 V3 and Huawei XH628 V3 are electronically equivalent.
The results have been measured on a Huawei XH622 V3 model.

### Base Compiler Invocation

**C benchmarks**:
- icc -m64

**C++ benchmarks**:
- icpc -m64

**Fortran benchmarks**:
- ifort -m64

**Benchmarks using both Fortran and C**:
- icc -m64 ifort -m64

### Base Portability Flags

410.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main

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Huawei

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Base Portability Flags (Continued)

437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64
450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
482.sphinx3: -DSPEC_CPU_LP64

Base Optimization Flags

C benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch
-ansi-alias

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias

Fortran benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch

Benchmarks using both Fortran and C:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch
-ansi-alias

Peak Compiler Invocation

C benchmarks:
icc -m64

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64

Benchmarks using both Fortran and C:
icc -m64 ifort -m64
Huawei

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Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

433.milc: -xCORE-AVX2 (pass 2) -prof-gen (pass 1) -ipo (pass 2)
    -O3 (pass 2) -no-prec-div (pass 2) -prof-use (pass 2)
    -auto-ilp32 -ansi-alias

470.lbm: basepeak = yes
482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: -xCORE-AVX2 (pass 2) -prof-gen (pass 1) -ipo (pass 2)
    -O3 (pass 2) -no-prec-div (pass 2) -prof-use (pass 2)
    -fno-alias -auto-ilp32

447.dealII: basepeak = yes
450.soplex: basepeak = yes
453.povray: -xCORE-AVX2 (pass 2) -prof-gen (pass 1) -ipo (pass 2)
    -O3 (pass 2) -no-prec-div (pass 2) -prof-use (pass 2) -unroll4
    -ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes
416.gamess: -xCORE-AVX2 (pass 2) -prof-gen (pass 1) -ipo (pass 2)
    -O3 (pass 2) -no-prec-div (pass 2) -prof-use (pass 2) -unroll2
    -inline-level=0 -scalar-rep-

434.zeusmp: basepeak = yes
437.leslie3d: basepeak = yes
459.GemsFDTD: -xCORE-AVX2 (pass 2) -prof-gen (pass 1) -ipo (pass 2)
    -O3 (pass 2) -no-prec-div (pass 2) -prof-use (pass 2) -unroll2
    -inline-level=0 -opt-prefetch -parallel

465.tonto: -xCORE-AVX2 (pass 2) -prof-gen (pass 1) -ipo (pass 2)
    -O3 (pass 2) -no-prec-div (pass 2) -prof-use (pass 2)
    -inline-calloc -opt-malloc-options=3 -auto -unroll4

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Peak Optimization Flags (Continued)

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes
436.cactusADM: basepeak = yes
454.calculix: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias
481.wrf: basepeak = yes

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.html
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-HASWELL-V1.4.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-HASWELL-V1.4.xml

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